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## The effect of moderate energy restricted and abundant protein diet on metabolic and body composition in adults with type. Diabetes

Ayla Coussa

McGill University, Canada

**Background:** Visceral adiposity is an important factor in insulin resistance as it contributes to blunted protein anabolism in diabetes, also known as sarcopenic obesity. Insulin sensitivity of protein metabolism (rate of anabolism and catabolism) in obese type. diabetics does not improve with glycemic control with medication or when enhancing dietary protein, although rates of protein turnover decrease. Maintaining protein intake at fixed percentage of energy in weight-loss diets exacerbate insulin sensitivity of protein metabolism.

**Purpose:** To investigate changes in insulin sensitivity of glucose and protein metabolism in obese diabetic adults over weeks of energy restriction with maintained abundant protein intake.

**Methodology:** adult diabetics were enrolled. The energy-restricted diet provided 60% of energy requirements with 26% as protein (1.8-1.9g/kg lean body mass/day). Isotopic tracers were used to quantify whole-body glucose (3-3H-glucose) and protein (13C-leucine) metabolism both pre- and post- weight-loss, postabsorptive and during hyperinsulinemic (~500pM), isoglycemic (149.4. 9.0 Pre vs. 104.4. 5.4mg/dl Post), isoaminoacidemic clamp. Changes in body composition were measured by dual-energy x-ray absorptiometry.

**Results:** At weeks of energy restriction, weight-loss was mainly attributed to total and visceral fat losses, while lean mass was preserved. Fasting plasma glucose was near normal, and serum insulin, C-peptide and HOMA-IR decreased significantly as well as other cardiovascular risk factors. Postabsorptive protein turnover decreased by 12% and rates of oxidation by 32%, resulting in sparing of body protein. Rates of glucose turnover decreased by 29% and glucose metabolic clearance rate improved by 24%. During clamp, protein turnover rates were lower and catabolism was suppressed by 12%.

**Conclusion:** Maintaining abundant protein intake preserves lean body mass in conditions of energy deficit and insulin resistance. Our data is critical to guide future clinical trials and serves as gauge for future clinical applicability of new medical practices.

ayla.coussa@mail.mcgill.ca

## Emerging trends in the Prevention and Management of Diabetes in South Asians

Parmjit Sohal

University of British Columbia, Canada

South Asians represent almost 25% of the global population. They are at least 3-5 times increased risk of developing diabetes as compared to Caucasians. There is also increased risk of diabetes in South Asians children and adolescents. South Asians have increased prevalence of pre-diabetes states in addition to diabetes. Despite increased prevalence of diabetes among South Asians, majority of the cases remain undiagnosed and poorly controlled. There are several barriers in the prevention and management of diabetes in South Asians which could be at patient, provider or the society level. Primary prevention needs collaboration with health care professionals, community leaders and funding agencies. Our recent Canadian study has shown that that 86% of South Asians diagnosed with diabetes less than 30 years of age were type. diabetes. The incidence of type. diabetes was highest in South Asians especially in 20-29 year olds with rates 2.2 times that of White and 3.1 times that of Chinese patients. South Asians patients should be screened for diabetes at relatively younger age (preferably starting at age 20) and more frequently than non-South Asians with appropriate prevention efforts in childhood and adolescence. South Asians should be aggressively managed for cardiovascular risk factors due to their high mortality rates from cardiovascular disease. structured culturally and linguistically relevant program of life style modifications that includes healthy diet, weight control and regular exercise should be implemented to reduce the risk and burden of type. diabetes in South Asians.

drsohal@shaw.ca